Industrial Engineering

Indices, 1984
Volume 16

Microfilm copies of articles are available from University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. Paper copies can also be obtained from the Publication Order Department, IIE, 25 Technology Park, Norcross, GA 30092, Phone 404/449-0460, for $4.00 each, prepaid.

Subjects (coded) and titles

0100 Costs

0103 Cost estimating

Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing; Salomon, D. P., Biegel, J. E.; June; p. 88.

Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing; Hutchinson, G. K.; June 77.

Qualitative Analysis Used In Evaluating Alternative Plant Location Scenarios; Spohrer, G. A., Kmak, T. R.; August; p. 52.

0104 Cost reduction programs

Tri-Service DoD Program Provides Incentives For Factory Modernization; Stimson, R. A., Reeves, A. D.; February; p. 54.

0105 Productivity

Awareness, Analysis and Improvement Are Keys to White Collar Productivity; Smith, C.; January; p. 84.

Decision Making On Investments Fuels Productivity Decline; Stevenson, D. O.; November; p. 70.

Experts Address Productivity Issues In Defense Industry For White House Conference; Sink, D. S.; February; p. 72.

IE Perspective And Expertise Needed In Defense Industry Productivity Efforts; Engwall, R. L.; February; p. 40.

IEs On Olympics Organizing Team Solve Logistics Problems, Apply High Tech To Help Hold Costs Down; Filley, R. D.; July; p. 44.

IEs Should Examine Impact of Management Style On Motivation and Productivity; Root, L. J. M.; January; p. 95.

Improving Use of Discretionary Time Raises Productivity Of Knowledge Workers In Offices; Conn, H. O.; July; p. 70.

Math Programming Techniques Becoming More Accessible For Productivity-Related Applications; Baker, T. E.; May; p. 94.

Methodology For Measuring Contractor Productivity Sought By Defense Groups; Engwall, R. L.; February; p. 62.

Operations Research Offers Valuable Tools For Increasing Productivity, Profits; Miller, D. M.; April; p. 39.

Plan Applies IE Concepts To Improve Productivity And Measure Creative Process Of Professionals; Magliola-Zoch, D., Weiner, R. G.; September; p. 46.

Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems; Groover, M. P., Hughes, J. E., Odrey, N. G.; April; p. 50.

Service Organizations Can Use IE Techniques To Improve Productivity Of Professional Workers; Magliola-Zoch, D., Weiner, R. G.; August, p. 44.

Simulation Models Are A Flexible, Efficient Aid To Productivity Improvement Efforts; Mellichamp, J. M.; August; p. 78.

Work Environment Survey Generates Ideas On Increasing White Collar Productivity; Liker J. K., Hancock, W. M.; July; p. 60.

0200 Employee relations

0203 Implementing change

GM Plant Kept Open Through Cooperative Efforts of Company, University, UAW and Community; Filley, R. D.; January; p. 48.

Work Issues Raised By Office Automation Call For Expertise of Industrial Engineers; Porter, A. L.; December; p. 24.

Worker Participation In Office Space Planning And Design Process Pays Large Dividends; Frazelle, E., Smith, Jr., C. L.; December; p. 34.

0300 Engineering economics

0303 Investment analysis

CIMS In Perspective: Costs, Benefits, Timing, Payback Periods Are Outlined; Willis, R. G., Sullivan, K. H.; February; p. 28.

Economic Analysis Of A Proposed Industrial Robot; Sullivan, W. G., Liu, M.; October; p. 118.

Procedures Given For Evaluating, Selecting Robots; Huang, P. Y., Ghandforoush, P.; April; p. 44.

Sensitivity Analysis Aids In Evaluation Of Investment; Suarez, J. A., Tanchoco, J.M.A.; March; p. 24.

0304 General

Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing; Salomon, D. P., Biegel, J. E.; June; p. 88.

Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing; Hutchinson, G. K.; June; p. 77.

Job Sequencing: Economic Approach Provides Best Order; Matta, K. F.; November; p. 22.

0400 Facilities planning, design

A Survey of Software For Facilities Planning & Design; May; p. 71.

Computerized Facilities Planning and Design: Sorting Out The Options Available Now; Hales, H. L.; May; p. 61.

Production Modules Offer Flexibility, Low Work-In-Process For High Tech Manufacturing; Cross, K. F.; October; p. 64.

Productivity Impact Of Facilities Planning & Design In High Tech Environment Gaining Recognition; May; p. 52.

Successful Facilities Planner Must Fulfill Role of Integrator In The Automated Environment; Tompkins, J. A.; May; p. 54.

0402 Facility location

Qualitative Analysis Used In Evaluating Alternative Plant Location Scenarios; Spohrer, G. A., Kmak, T. R.; August; p. 52.

0403 Office Layout

Office Automation Provides Opportunity to Examine What Workers Actually Do; Jackson, L.; January; p. 91.

0019-8234/84$03.00/0

Industrial Engineering

Indices, 1984
Volume 16

Microfilm copies of articles are available from University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. Paper copies can also be obtained from the Publication Order Department, IIE, 25 Technology Park, Norcross, GA 30092, Phone 404/449-0460, for $4.00 each, prepaid.

Subjects (coded) and titles

0100 Costs

0103 Cost estimating

Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing; Salomon, D. P., Biegel, J. E.; June; p. 88.

Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing; Hutchinson, G. K.; June 77.

Qualitative Analysis Used In Evaluating Alternative Plant Location Scenarios; Spohrer, G. A., Kmak, T. R.; August; p. 52.

0104 Cost reduction programs

Tri-Service DoD Program Provides Incentives For Factory Modernization; Stimson, R. A., Reeves, A. D.; February; p. 54.

0105 Productivity

Awareness, Analysis and Improvement Are Keys to White Collar Productivity; Smith, C.; January; p. 84.

Decision Making On Investments Fuels Productivity Decline; Stevenson, D. O.; November; p. 70.

Experts Address Productivity Issues In Defense Industry For White House Conference; Sink, D. S.; February; p. 72.

IE Perspective And Expertise Needed In Defense Industry Productivity Efforts; Engwall, R. L.; February; p. 40.

IEs On Olympics Organizing Team Solve Logistics Problems, Apply High Tech To Help Hold Costs Down; Filley, R. D.; July; p. 44.

IEs Should Examine Impact of Management Style On Motivation and Productivity; Root, L. J. M.; January; p. 95.

Improving Use of Discretionary Time Raises Productivity Of Knowledge Workers In Offices; Conn, H. O.; July; p. 70.

Math Programming Techniques Becoming More Accessible For Productivity-Related Applications; Baker, T. E.; May; p. 94.

Methodology For Measuring Contractor Productivity Sought By Defense Groups; Engwall, R. L.; February; p. 62.

Operations Research Offers Valuable Tools For Increasing Productivity, Profits; Miller, D. M.; April; p. 39.

Plan Applies IE Concepts To Improve Productivity And Measure Creative Process Of Professionals; Magliola-Zoch, D., Weiner, R. G.; September; p. 46.

Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems; Groover, M. P., Hughes, J. E., Odrey, N. G.; April; p. 50.

Service Organizations Can Use IE Techniques To Improve Productivity Of Professional Workers; Magliola-Zoch, D., Weiner, R. G.; August, p. 44.

Simulation Models Are A Flexible, Efficient Aid To Productivity Improvement Efforts; Mellichamp, J. M.; August; p. 78.

Work Environment Survey Generates Ideas On Increasing White Collar Productivity; Liker J. K., Hancock, W. M.; July; p. 60.

0200 Employee relations

0203 Implementing change

GM Plant Kept Open Through Cooperative Efforts of Company, University, UAW and Community; Filley, R. D.; January; p. 48.

Work Issues Raised By Office Automation Call For Expertise of Industrial Engineers; Porter, A. L.; December; p. 24.

Worker Participation In Office Space Planning And Design Process Pays Large Dividends; Frazelle, E., Smith, Jr., C. L.; December; p. 34.

0300 Engineering economics

0303 Investment analysis

CIMS In Perspective: Costs, Benefits, Timing, Payback Periods Are Outlined; Willis, R. G., Sullivan, K. H.; February; p. 28.

Economic Analysis Of A Proposed Industrial Robot; Sullivan, W. G., Liu, M.; October; p. 118.

Procedures Given For Evaluating, Selecting Robots; Huang, P. Y., Ghandforoush, P.; April; p. 44.

Sensitivity Analysis Aids In Evaluation Of Investment; Suarez, J. A., Tanchoco, J.M.A.; March; p. 24.

0304 General

Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing; Salomon, D. P., Biegel, J. E.; June; p. 88.

Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing; Hutchinson, G. K.; June; p. 77.

Job Sequencing: Economic Approach Provides Best Order; Matta, K. F.; November; p. 22.

0400 Facilities planning, design

A Survey of Software For Facilities Planning & Design; May; p. 71.

Computerized Facilities Planning and Design: Sorting Out The Options Available Now; Hales, H. L.; May; p. 61.

Production Modules Offer Flexibility, Low Work-In-Process For High Tech Manufacturing; Cross, K. F.; October; p. 64.

Productivity Impact Of Facilities Planning & Design In High Tech Environment Gaining Recognition; May; p. 52.

Successful Facilities Planner Must Fulfill Role of Integrator In The Automated Environment; Tompkins, J. A.; May; p. 54.

0402 Facility location

Qualitative Analysis Used In Evaluating Alternative Plant Location Scenarios; Spohrer, G. A., Kmak, T. R.; August; p. 52.

0403 Office Layout

Office Automation Provides Opportunity to Examine What Workers Actually Do; Jackson, L.; January; p. 91.

0019-8234/84$03.00/0

Worker Participation In Office Space Planning And Design Process Pays Large Dividends; Frazelle, E., Smith, Jr., C. L.; December; p. 34.

0405 Plant layout analysis

Computer-Aided Facility Layout Algorithm Generates Alternatives To Increase Firm's Productivity; Manivannan, S., Chaudhuri, D.; May; p. 81.

Facility Layout Optimizes Space, Minimizes Costs; Gaston, G. K.; May; p. 22.

0406 Plant layout principles

Modern Manufacturing Techniques Require Flexible Approach To Facilities Planning; Hill, I. D.; May; p. 86.

0407 Plant layout evaluation/testing procedures

High Tech Production Lines Present Special Needs And Challenges To Facilities Planners; Cross, K. F.; August; p. 64.

0500 Functional operations

0503 Computer operation, software

A Survey of Software For Facilities Planning & Design; May; p. 71.

BASIC Program Aids In Production Planning; Biegel, J. E., Punja, K. K.; October; p. 18.

Computer-Aided Facility Layout Algorithm Generates Alternatives To Increase Firm's Productivity; Manivannan, S., Chaudhuri, D.; May; p. 81.

Computerized Facilities Planning and Design: Sorting Out The Options Available Now; Hales, H. L.; May; p. 61.

Design Team Has A System For Getting New Microcomputer From Drawing Board To Marketplace In 18 Months; Flint, B.; September; p. 37.

Electronic Spreadsheets Ease Microcomputer Use For IEs; Mendenhall, C.M., Whitehouse, G.E.; September; p. 22.

Facility Layout Optimizes Space, Minimizes Costs; Gaston, G. K.; May; p. 22.

Flow Shop Sequence Solved For Holding, Tardiness Costs; Woollam, C. R., Sambandam, N.; June; p. 18.

General Purpose Software Adapted For IE Applications; Kleinfeld, I. H.; February; p. 18.

IEs Must Consider Ergonomic, Work Area Issues To Overcome Problems With VDTs; Robinson, D. A.; December; p. 58.

Job Sequencing: Economic Approach Provides Best Order; Matta, K. F.; November; p. 22.

Menu System Aids Decisions Made On Qualitative Data; Cox, D. K., December; p. 16.

Microcomputer Analyzes 2-Card Kanban System For 'Just-In-Time' Small Batch Production; Schroer, B. J., Black, J. T.; June; p. 54.

Microcomputer And Spreadsheet Software Make Time Studies Less Tedious, More Accurate; McDermott, K. J.; July; p. 78.

Microcomputer Is A Useful, Versatile Tool For All Levels Of Manufacturing Business Planning; Sepehri, M.; September; p. 56.

Neither Time Sink Nor Dust Collector: Turning Micros Into Cost-Effective Tools; Conrad, S.; September; p. 70.

Program Calculates Results Of Work Measurement Sampling; McNall, G. R.; July; p. 25.

Program Considers Relationships In Capital Budgeting Decisions; Zaloom, V., Li D.; August; p. 19.

Program Gives Best Choices for Scheduling Meetings; Noller, D.; January; p. 24.

Program Solves Minimum Spanning Tree Problem; Gupta, S. M.; April; p. 20.

Sensitivity Analysis Aids In Evaluation Of Investment; Suarez, J. A., Tanchoco, J.M.A.; March; p. 24.

What's The Real Impact Of The Microcomputer?; September; p. 20.

0600 Human engineering

0603 Ergonomics

IEs Must Consider Ergonomic, Work Area Issues To Overcome Problems with VDTs; Robinson, D. A.; December; p. 58.

0604 Learning

0605 Motivation

IEs Should Examine Impact of Management Style on Motivation and Productivity; Root, L. J. M.; January; p. 95.

0610 Sociological factors

Analysis Techniques Help IEs Evaluate Ethical Dimensions Of On-The-Job Decisions; Stewart, W. T., Paustenbach, D. J.; April; p. 85.

IEs Face Important Questions About Societal Impacts At 'Cutting Edge' Of Technology; April; p. 49.

Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems; Groover, M. P., Hughes, J. E., Odrey, N. G.; April; p. 50.

0800 Industrial engineering

General Purpose Software Adapted For IE Applications; Kleinfeld, I. H.; February; p. 18.

IE Perspective And Expertise Needed In Defense Industry Productivity Efforts; Engwall, R. L.; February; p. 40.

0801 IIE

Conference focuses On Industrial Engineering's Agenda For The Future; Cudworth, E. F.; July; p. 22.

Fall Conferees Focus On Theme, 'Integrating People and Systems'; Filley, R. D.; January; p. 98.

IIE Board of Trustees, 1984-85; June; p. 98.

Institute Officers: 1984-85; March; p. 96.

Show-in-Print; April; p. 81.

1983-84 Annual Report; July; p. 93.

General Industrial Engineering Services

Inbucon Productivity Services, Inc. a world leader in estimating and planning systems now offers to you the following General Industrial Engineering Services:

- Time Study
- Plant Layout
- Video Programs
- Line Balancing
- Work Sampling
- Procedure Writing
- Method Improvement
- Work Flow Studies
- Staffing Analysis
- Inventory Sampling

Contact us today for more information and a copy of our brochure:

INBUCON PRODUCTIVITY SERVICES INC.

Inbucon Productivity Services, Inc.
22865 Lake Forest Drive • Lake Forest, CA 92630
Telephone: (714) 951-5755

Offices located in Chicago, Los Angeles and New York
Members of the Reliance Consulting Group

Get More Information, Circle ***141***

0802 Community Service

GM Plant Kept Open Through Cooperative Efforts of Company, University, UAW and Community; Filley, R. D.; January; p. 48

0804 Education

Education Process Is Vital To Realization Of CIM Benefits, Handling Of Pitfalls; Scalpone, R. W.; October; p. 110.

Labs and study Centers at Schools Around the U.S. Taking Innovative Approaches to Student Preparation; January; p. 52.

0805 IEs, IE technologists

Analysis Techniques Help IEs Evaluate Ethical Dimensions Of On-The-Job Decisions; Stewart, W. T., Paustenbach, D. J.; April; p. 85.

Getting Industrial Engineers Involved With MRP-II; Myers, C. F.; October; p. 49.

IE=Entrepreneur As Technology Drives Product Innovation; Banfe, C.; August; p. 58.

IEs Can Play Vital Role In Bringing The Disabled Into Economic Mainstream; Rhyne, D. M.; April; p. 60.

IEs On Olympics Organizing Team Solve Logistics Problems, Apply High Tech To Help Hold Costs Down; Filley, R. D.; July; p. 44.

What's Holding IEs Back From The Office Of The Future?; Filley, R. D.; December; p. 38.

0806 IE management

Delta Air Lines President Ronald W. Allen Discusses Company's Highly Successful Employee Motivation Program, Long-Range Strategic Thinking; October; 85.

IE Managers Discuss How To Best Employ Company Resources, Worker Involvement; Cudworth, E. F.; May; p. 98.

IEs At Top Combine Global Perspectives, People Skills And Risk Taking As They 'Manage The Future': George L. Anton, P.E.; Franklin G. Bishop, P.E. Stephen Lynn; Filley, R. D.; August; p. 26.

IEs At Top Combine Global Perspectives, People Skills And Risk Taking As They 'Manage The Future': Lee A. Iacocca; Cudworth, E. F.; August, p. 38.

IEs At Top Combine Global Perspectives, People Skills And Risk Taking As They 'Manage The Future': Harold C. McKenzie, Jr.; King, L. T.; August. p. 34.

0900 Industries

0901 Financial

American Express Implements Office Automation To Aid Customer Service; Spechler, J. W.; December; p. 46.

IEs Measure Work, Write Standards For White Collar Workers at Financial Institution; Anthony G. M.; January; p. 77.

0903 Health care and other services

Service Organizations Can Use IE Techniques To Improve Productivity Of Professional Workers; Magliola-Zoch, D., Weiner, R. G.; August; p. 44.

0904 Manufacturing

Adapting Horizontal Material Handling Systems To Flexible Manufacturing Setups; Pierson, R. A.; March; p. 62.

Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing; Salomon, D. P., Bidgel, J. E.; June; p. 88.

Bar Code Technology Plays Role In Integration of Information & Control Systems Manufacturing Operations; Andersson, E. P.; November; p. 40.

CIM Project May Be Doomed To Failure If Key Building Blocks Are Missing; Manchuk, S.; July; p. 34.

CIMS In Perspective: Costs, Benefits, Timing, Payback Periods Are Outlined; Willis, R. G., Sullivan, K. H.; February; p. 28.

Components Can Be Added Gradually By Logically Mapping Out Present, Future Uses; Gross, J. L.; June; p. 28.

Computer-Aided Facility Layout Algorithm Generates Alternatives To Increase Firm's Productivity; Manivannan, S., Chaudhuri, D.; May; p. 81.

Computer-Integrated Manufacturing Series Will Apply Systems Approach to Factory of Future; Sadowski, R. P.; January; p. 35.

Data Collection From Production Workers Provides Basis For Better Decision Making; Twedt, G. A.; November; p. 54.

Design Team Has A System For Getting New Microcomputer From Drawing Board To Marketplace In 18 Months; Flint, B.; September; p. 37.

Designers, Users And Managers Share Responsibility For Ensuring CIM System Integrity; Britton, H. O., Hammer, Jr., W. E.; May; p. 36.

Education Process Is Vital To Realization Of CIM Benefits, Handling Of Pitfalls; Scalpone, R. W.; October; p. 110.

Experts Address Productivity Issues In Defense Industry For White House Conference; Sink, D. S.; February ; p. 72.

Factories Can Meet Current And Future Needs By Phasing In Flexible Controls; Packer, A. F.; March; p. 72.

Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing; Hutchinson, G. K.; June; p. 76.

Functional Integration Is Key To Factory Of Future; Dicasali, R. L.; September; p. 62.

Functional Planning Approach Maps Out Connections Between People and Systems; LeClair, S. R., Hill, T. W.; April; p. 26.

High Tech Production Lines Present Special Needs And Challenges To Facilities Planners; Cross, K. F.; August; p. 64.

History Of Computer Use In Manufacturing Shows Major Need Now Is For Integration; Sadowski, R. P.; March; p. 34.

How Small Firms Can Approach, Benefit From Computer-Integrated Manufacturing Systems; Hales H. L.; June; p. 42.

IE Perspective And Expertise Needed In Defense Industry Productivity Efforts; Engwall, R. L.; February; p. 40.

Job Sequencing: Economic Approach Provides Best Order; Matta, K. F.; November; p. 22.

Just-In-Time Production Systems: Replacing Complexity With Simplicity In Manufacturing Management; Schonberger, R. J.; October; p. 52.

Machine Load, Unload Automation Is Robot Challenge; Hinson, R.; March; p. 103.

Managements Looking At CIMS Must Deal Effectively With These 'Issues And Realities'; French, R. L.; August; p. 70.

MANTECH Program Aims To Make Factory Of Future A Reality In Defense; Tulkoff, J.; February; p. 46.

Methodology for Measuring Contractor Productivity Sought By Defense Groups; Engwall, R. L.; February; p. 62.

Microcomputer Analyzes 2-Card Kanban System For 'Just-In-Time' Small Batch Production; Schroer, B. J., Black, J. T.; June; p. 54.

Microcomputer Is a Useful, Versatile Tool For All Levels Of Manufacturing Business Planning; Sepehri, M.; September; p. 56.

Modern Manufacturing Techniques Require Flexible Approach To Facilities Planning; Hill, I. D.; May; p. 86.

Modular Work Stations Provide Flexibility For Changing Demands In Manufacturing Setups; Brown E.; March; p. 86.

MRP-II Providing A Natural 'Hub' For Computer-Integrated Manufacturing System; Fox, K. A., October; p. 44.

OPT Uncovered: Many Production Planning And Scheduling Concepts Can Be Applied With Or Without The Software; Jacobs, R. F.; October; p. 32.

Pratt & Whitney's $200 Million Factory Showcase; Cudworth, E. F.; October; p. 90.

Production Modules Offer Flexibility, Low Work-In-Process For High Tech Manufacturing; Cross, K. F.; October; p. 64.

Radio Frequency System Of Identification Lowers Costs, Facilitates Production For German Auto Maker; Pretzsch, H., Bressmer, D.; November; p. 64.

Robotics Provide Improved Quality in Manufacturing; Hinson, R; January; p. 45.

Shop Floor Information System Is Foundation And Communications Link For CIMS; Robbins, J. H., Kapur, R., Berry, G. L.; December; p. 62.

Successful Facilities Planner Must Fulfill Role of Integrator In The Automated Environment; Tompkins, J. A.; May; p. 54.

The CIMS Database; Goals, Problems, Case Studies And Proposed Approaches Outlined; Melkanoff, M. A.; November; p. 78.

The Information Dilemma: to Conceptualize Manufacturing As Information Process; Young, R. E.; Mayer, R.; September; p. 28.

Tri-Service DoD Program Provides Incentives For Factory Modernization; Stimson, R. A., Reeves, A. D.; February; p. 54.

Update: NBS Research Facility Addresses Problems In Set-Ups For Small Batch Manufacturing; Nanzetta, P.; June; 68.

Update On Military Standard 1567 and Proposed Applications Guide Describes Contractor Concerns; Wade, L. F.; February; p. 74.

0905 Transportation, distribution

Delta Air Lines President Ronald W. Allen Discusses Company's Highly Successful Employee Motivation Program, Long-Range Strategic Thinking; October; 85.

0906 Others

IEs On Olympics Organizing Team Solve Logistics Problems, Apply High Tech To Help Hold Costs Down; Filley, R. D.; July; p. 44.

1000 Management

IEs Act As Visionaries In Strategic Planning Areas Of Management; August; p. 24.

1003 Decision making

Analysis Techniques Help IEs Evaluate Ethical Dimensions Of On-The-Job Decisions; Stewart, W. T., Paustenbach, D. J.; April; p. 85.

Decision Making On Investments Fuels Productivity Decline; Stevenson, D. O.; November; p. 70.

Menu System Aids Decisions Made On Qualitative Data; Cox, D. K.; December; p. 16.

1004 Information systems

Functional Integration Is Key To Factory Of Future; Dicasali, R. L.; September; p. 62.

Microcomputer Is A Useful, Versatile Tool For All Levels Of Manufacturing Business Planning; Sepehri, M.; September; p. 56.

Neither Time Sink Nor Dust Collector: Turning Micros Into Cost-Effective Tools; Conrad, S.; September; p. 70.

Office Productivity Depends On How Well The Information System Supports Work, Decision Processes; December; p. 22.

Shop Floor Information System Is Foundation And Communications Link For CIMS; Robbins, J. H., Kapur, R., Berry, G. L.; December; p. 62.

The Information Dilemma: to Conceptualize Manufacturing As Information Process; Young, R. E.; Mayer, R.; September; p. 28.

What's Holding IEs Back From The Office Of The Future?; Filley, R. D.; December; p. 38.

1005 Management development

IE=Entrepreneur As Technology Drives Product Innovation; Banfe, C.; August; p. 58.

1006 Organization

Program Gives Best Choices for Scheduling Meetings; Noller, D.; January; p. 24.

1008 Controls

Execution Is Key To Success Of Any System For Manufacturing Material Flow Control; Swann, D.; October; p. 26.

Just-In-Time Production Systems: Replacing Complexity With Simplicity In Manufacturing Management; Schonberger, R. J.; October; p. 52.

Methodology For Measuring Contractor Productivity Sought By Defense Groups; Engwall, R. L.; February; p. 62.

1100 Material handling

Shrinking The Material Handling Function: The Challenge Of The New Production Economics; Duncan, L. S.; October; p. 100.

1101 Containers, unit loads

Study Analyzes Utilizing Robots in Palletizing; Hinson, R.; February; p. 21.

1102 Conveyors

Adapting Horizontal Material Handling Systems To Flexible Manufacturing Setups; Pierson, R. A.; March; p. 62.

1107 Methods and systems design

Designing Material Handling Systems With Management Issues In Mind; Apple, Jr., J. M.; March; p. 56.

Look At Foreseeable Trends In Parts Handling Offers Strategies For System Planners; Wenzel, C. D.; March; p. 46.

1108 Packaging

Case Packing By Robots Saves Labor, Injuries; Hinson, R.; May; p. 29.

1111 Storage, warehousing

International Conference Looks At Changes In Design, Function and Role of Warehousing Today; Filley, R. D.; February; p. 82.

New Uses Of Traditional Storage Systems Can Minimize Inventory And Work-In-Process; Binning, R. L.; March; p. 81.

1112 Evaluation and selection

Procedures Given For Evaluating, Selecting Robots; Huang, P. Y., Ghandforoush, P.; April; p. 44.

1200 Methods engineering

1201 Automation, mechanization

American Express Implements office Automation To Aid Customer Service; Spechler, J. W.; December; p. 46.

Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing; Salomon, D. P., Biegel, J. E.; June; p. 88.

Case Packing By Robots Saves Labor, Injuries; Hinson, R.; May; p. 29.

Decision Making On Investments Fuels Productivity Decline; Stevenson, D. O.; November; p. 70.

Economic Analysis Of A Proposed Industrial Robot; Sullivan, W. G., Liu, M.; October; p. 118.

Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing; Hutchinson, G. K.; June 77.

Look At Foreseeable Trends In Parts Handling Offers Strategies For system Planners; Wenzel, C. D.; March; p. 46.

Machine Load, Unload Automation Is Robot Challenge; Hinson, R.; March; p. 103.

MANTECH Program Aims To Make Factory Of Future A Reality In Defense; Tulkoff, J.; February; p. 46.

Methodology Identifies Networking Requirements For Implementing An Office Automation System; Cox, J. F., Ledbetter, W. N., Snyder, C. A.; December; p. 52.

New Approaches Help Make Automation Feasible In Small Batch Manufacturing Operations; June; p. 41.

Pratt & Whitney's $200 Million Factory Showcase; Cudworth, E. F.; October; p. 90.

Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems; Groover, M. P., Hughes, J. E., Odrey, N. G.; April; p. 50.

Robot Applications Well Suited To Arc Welding Operations; Hinson, R.; July; p. 30.

Study Analyzes Utilizing Robots In Palletizing; Hinson, R.; February; p. 21.

Robotics Provide Improved Quality in Manufacturing; Hinson, R; January; p. 45.

Work Issues Raised By Office Automation Call For Expertise Of Industrial Engineers; Porter, A. L.; December; p. 24.

1202 Computer control

CIM Project May Be Doomed To Failure If Key Building Blocks Are Missing; Manchuk, S.; July; p. 34.

CIMS In Perspective: Costs, Benefits, Timing, Payback Periods Are Outlined; Willis, R. G., Sullivan, K. H.; February; p. 28.

Components Can Be Added Gradually By Logically Mapping Out Present, Future Uses; Gross, J. L.; June; p. 28.

Computer-Integrated Manufacturing Series Will Apply Systems Approach to Factory of Future; Sadowski, R. P.; January; p. 35.

Designers, Users And Managers Share Responsibility For Ensuring CIM System Integrity; Britton, H. O., Hammer, Jr., W. E.; May; p. 36.

Education Process Is Vital To Realization Of CIM Benefits, Handling Of Pitfalls; Scalpone, R. W.; October; p. 110.

Factories Can Meet Current And Future Needs By Phasing In Flexible Controls; Packer, A. F.; March; p. 72.

Functional Planning Approach Maps Out Connections Between People and Systems; LeClair, S. R., Hill, T. W.; April; p. 26.

History Of Computer Use In Manufacturing Shows Major Need Now Is For Integration; Sadowski, R. P.; March; p. 34.

How Small Firms Can Approach, Benefit From Computer-Integrated Manufacturing Systems; Hales, H. L.; June; p. 42.

Managements Looking At CIMS Must Deal Effectively With These 'Issues And Realities'; French, R. L.; August; p. 70.

MRP-II Providing A Natural 'Hub' For Computer-Integrated Manufacturing System; Fox, K. A., October; p. 44.

OPT Uncovered: Many Production Planning And Scheduling Concepts Can Be Applied With Or Without The Software; Jacobs, R. F.; October; p. 32.

Procedures Given For Evaluating, Selecting Robots; Huang, P. Y., Ghandforoush, P.; April; p. 44.

Update: NBS Research Facility Addresses Problems In Set-Ups For Small Batch Manufacturing; Nanzetta, P.; June; 68.

1204 Identification systems

Automatic Identification Systems: Technologies Whose Time Has Come; November; p. 20.

Data Collection From Production Workers Provides Basis For Better Decision Making; Twedt, G. A.; November; p. 54.

Quality of Bar Code Printing Needs To Be Verified To Assure Ongoing Data Accuracy; Parsons, K., Maginnis, C.; November; p. 48.

Radio Frequency System Of Identification Lowers Costs, Facilitates Production For German Auto Maker; Pretzsch, H., Bressmer, D.; November; p. 64.

1984 Bar Code Equipment Buyer's Guide; Filley, R. D.; November; p. 29.

1205 Manufacturing engineering

Robot Applications Well Suited To Arc Welding Operations; Hinson, R.; July; p. 30.

1208 Principles, analysis

Shrinking The Material Handling Function: The Challenge Of The New Production Economics; Duncan, L. S.; October; p. 100.

1213 Work design, methods improvement

Design Team Has A System For Getting New Microcomputer From Drawing Board To Marketplace In 18 Months; Flint, B.; September; p. 37.

Modular Work Stations Provide Flexibility For Changing Demands In Manufacturing Setups; Brown E.; March; p. 86.

Work Structuring Provides Basis For Improving Organization Of Production Systems; Bullinger, H. J., Ammer, E.D.; October; p. 74.

1300 Quantitative methods

Operations Research Offers Valuable Tools For Increasing Productivity, Profits; Miller, D. M.; April; p. 39.

1301 Mathematical models

Math Programming Techniques Becoming More Accessible for Productivity-Related Applications; Baker, T. E.; May; p. 94.

Using Combinatorics To Solve Production Scheduling Problems In Matching Jobs And Machines; Parker, R. G.; June; p. 22.

1302 Networks

Program Solves Minimum Spanning Tree Problem; Gupta, S. M.; April; p. 20.

1305 Simulation/games

Simulation Models Are A Flexible, Efficient Aid To Productivity Improvement Efforts; Mellichamp, J. M.; August; p. 78.

1306 Applied probability

Microcomputer And Spreadsheet Software Make Time Studies Less Tedious, More Accurate; McDermott, K. J.; July; p. 78.

1400 Production and inventory control

Data Collection From Production Workers Provides Basis For Better Decision Making; Twedt, G. A.; November; p. 54.

Execution Is Key To Success Of Any System For Manufacturing Material Flow Control; Swann, D.; October; p. 26.

Fourth Generation Computer Language Bridges Gap For Production And Inventory Data In Business Cycle; Jay, J.M., Van Zandt, R.N., Hanson, P.G.;

September; p. 42.
Mysteries And Realities Of Production & Inventory Control; October; p. 25.
Quality Of Bar Code Printing Needs To Be Verified To Assure Ongoing Data Accuracy; Parsons, K., Maginnis, C.; November; p. 48.
1984 Bar Code Equipment Buyer's Guide; Filley, R. D.; November; p. 29.

1403 Inventory control
New Uses Of Traditional Storage Systems Can Minimize Inventory And Work-In-Process; Binning, R. L.; March; p. 81.

1404 Materials management
Just-In-Time Production Systems: Replacing Complexity With Simplicity In Manufacturing Management; Schonberger, R. J.; October; p. 52.
Microcomputer Analyzes 2-Card Kanban System For 'Just-In-Time' Small Batch Production; Schroer, B. J., Black, J. T.; June; p. 54.

1405 Production Control
Radio Frequency System Of Identification Lowers Costs, Facilitates Production For German Auto Maker; Pretzsch, H., Bressmer, D.; November; p. 64.

1406 Production planning
BASIC Program Aids In Production Planning; Biegel, J. E., Punja, K. K.; October; p. 18.
Flow Shop Sequence Solved For Holding, Tardiness Costs; Woollam, C. R., Sambandam, N.; June; p. 18.
Getting Industrial Engineers Involved With MRP-II; Myers, C. F.; October; p. 49.
Work Structuring Provides Basis For Improving Organization Of Production Systems; Bullinger, H.J., Ammer, E.D.; October; p. 74.

1407 Production scheduling
MRP-II Providing A Natural 'Hub' For Computer-Integrated Manufacturing System; Fox, K. A., October; p. 44.
OPT Uncovered: Many Production Planning And Scheduling Concepts Can Be Applied With Or Without The Software; Jacobs, R. F.; October; p. 32.
Using Combinatorics To Solve Production Scheduling Problems In Matching Jobs And Machines; Parker, R. G.; June; p. 22.

1500 Quality control
Robotics Provide Improved Quality in Manufacturing; Hinson, R; January; p. 45.

1501 Inspection
Quality Of Bar Code Printing Needs To Be Verified To Assure Ongoing Data Accuracy; Parsons, K., Maginnis, C.; November; p. 48.

1600 Work measurement
Better Use Of Better Tools Should Make Work Measurement Increasingly Valuable In Future; Sellie, C.; July; p. 82.
From Offices To The Olympics, IE Expertise Is Making Work More Productive And Rewarding; July; p. 58.
IEs Measure Work, Write Standards For White Collar Workers at Financial Institution; Anthony, G. M.; January; p. 77.

1607 Standards Auditing
Update On Military Standard 1567 And Proposed Applications Guide Describes Contractor Concerns; Wade, L. F.; February; p. 74.

1608 Standards development
Awareness, Analysis and Improvement Are Keys to White Collar Productivity; Smith, C.; January; p. 84.

1609 Time measurement
Microcomputer And Spreadsheet Software Make Time Studies Less Tedious, More Accurate; McDermott, K. J.; July; p. 78.

1610 Work sampling
Program Calculates Results Of Work Measurement Sampling; McNall, G. R.; July; p. 25.

1611 General
Improving Use of Discretionary Time Raises Productivity Of Knowledge Workers In Offices; Conn, H. P.; July; p. 70.
Office Automation Provides Opportunity to Examine What Workers Actually Do; Jackson, L.; January; p. 91.
Plan Applies IE Concepts To Improve Productivity And Measure Creative Process Of Professionals; Magliola-Zoch, D., Weiner, R. G.; September; p. 46.
Work Environment Survey Generates Idesas On Increasing White Collar Productivity; Liker, J. K., Hancock, W. M.; July; p. 60.

1700 Data processing systems design
Functional Integration Is Key To Factory Of Future; Dicasali, R. L.; September; p. 62.

1704 Information retrieval
Electronic Spreadsheets Ease Microcomputer Use For IEs; Mendenhall, C.M., Whitehouse, G.E.; September; p. 22.
The CIMS Database: Goals, Problems, Case Studies And Proposed Approaches Outlined; Melkanoff, M. A.; November; p. 78.

1705 General
Computerized Facilities Planning and Design: Sorting Out The Options Available Now; Hales, H. L.; May; p. 61.
Designers, Users And Managers Share Responsibility For Ensuring CIM System Integrity; Britton, H. O., Hammer, Jr., W. E.; May; p. 36.
Fourth Generation Computer Language Bridges Gap For Production And Inventory Data In Business Cycle; Jay, J.M., Van Zandt, R.N., Hanson, P.G.; September; p. 42.
Methodology Identifies Networking Requirements For Implementing An Office Automation System; Cox, J. F., Ledbetter, W. N., Snyder, C. A.; December; p. 52.
Shop Floor Information System Is Foundation And Communications Link For CIMS; Robbins, J. H., Kapur, R., Berry, G. L.; December; p. 62.

Authors

Ammer, E. D., Bullinger, H. J.; *Work Structuring Provides Basis For Improving Organization of Production Systems;* October; p. 74.

Andersson, E. P.; *Bar Code Technology Plays Key Role In Integration of Information & Control Systems Manufacturing Operation;* November; p. 40.

Anthony, G. M.; *IEs Measure Work, Write Standards For White Color Workers At Financial Institution;* January; p. 77.

Apple, Jr., J. M.; *Designing Material Handling Systems With Management Issues In Mind;* March; p. 56.

Baker, T. E.; *Math Programming Techniques Becoming More Accessible For Productivity-Related Applications;* May; p. 94.

Banfe, C.; *IE=Entrepreneur As Technology Drives Product Innovation;* August; p. 58.

Berry, G. L., Kapur, R., Robbins, J. H.; *Shop Floor Information System Is Foundation And Communications Link For CIMS;* December; p. 62.

Biegel, J. E., Salomon, D. P.; *Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing;* June; p. 88.

Biegel, J. E., Punja, K. K.; *BASIC Program Aids In Production Planning;* October; p. 18.

Binning, R. L.; *New Uses Of Traditional Storage Systems Can Minimize Inventory And Work-In-Process;* March; p. 81.

Black, J. T., Schroer, B. J.; *Microcomputer Analyzes 2-Card Kanban System For 'Just-In-Time' Small Batch Production;* June; p. 54.

Bressmer, D., Pretzsch, H.; *Radio Frequency System of Identification Lowers Costs, Facilitates Production For German Auto Maker;* November; p. 64.

Britton, H. O., Hammer, Jr., W. E.; *Designers, Users And Managers Share Responsibility For Ensuring CIM System Integrity;* May; p. 36.

Brown, E.; *Modular Work Stations Provide Flexibility For Changing Demands In Manufacturing Setups;* March; p. 86.

Bullinger, H.J., Ammer, E. D.; *Work Structuring Provides Basis For Improving Organization Of Production Systems;* October; p. 74.

Chaudhuri, D., Manivannan, S.; *Computer-Aided Facility Layout Algorithm Generates Alternatives To Increase Firm's Productivity;* May; p. 81.

Conn, H. P.; *Improving Use Of Discretionary Time Raises Productivity Of Knowledge Workers In Offices;* July; p. 70.

Conrad, S.; *Neither Time Sink Nor Dust Collector: Turning Micros Into Cost-Effective Tools;* September; p. 70.

Cox, D. K.; *Menu System Aids Decisions Made On Qualitative Data;* December; p. 16.

Cox, J. F., Snyder, C. A., Ledbetter, W. N.; *Methodology Identifies Networking Requirements For Implementing An Office Automation System;* December; p. 52.

Cross, K. F.; *High Tech Production Lines Present Special Needs And Challenges To Facilities Planners;* August; p. 64.

Cross, K. F.; *Production Modules Offer Flexibility, Low Work-In-Process For High Tech Manufacturing;* October; p. 64.

Cudworth, E. F.; *IE Managers Discuss How To Best Employ Company Resources, Worker Involvement;* May; p. 98.

Cudworth, E. F.; *Pratt & Whitney's $200 Million Factory Showcase;* October; p. 90.

Cudworth, E. F.; *Conference Focuses On Industrial Engineering's Agenda For The Future;* July; p. 22.

Cudworth, E. F.; *IEs At Top Combine Global Perspectives, People Skills And Risk Taking As They 'Manage The Future': Lee A. Iacocca;* August; p. 38.

Dicasali, R. L.; *Functional Integration Is Key To Factory Of Future;* September; p. 62.

Duncan, L. S.; *Shrinking The Material Handling Function: The Challenge Of The New Production Economics;* October; p. 100.

Engwall, R. L.; *IE Perspective And Expertise Needed In Defense Industry Productivity Efforts;* February; p. 40.

Engwall, R. L.; *Methodology For Measuring Contractor Productivity Sought By Defense Groups;* February; p. 62.

Filley, R. D.; *IEs At Top Combine Global Perspectives, People Skills And Risk Taking As They 'Manage The Future': George L. Anton, P.E.; Franklin G. Bishop, P.E.; Stephen Lynn;* August; p. 26.

Filley, R. D.; *IEs On Olympics Organizing Team Solve Logistics Problems, Apply High Tech To Help Hold Costs Down;* July; p. 44.

Filley, R. D.; *A Survey of Software For Facilities Planning & Design;* May; p. 71.

Filley, R. D.; *International Conference Looks At Changes In Design, Function And Role of Warehousing Today;* February; p. 82.

Filley, R. D.; *Fall Conferees Focus On Theme, 'Integrating People And Systems';* January; p. 98.

Filley, R. D.; *GM Plant Kept Open Through Cooperative Efforts of Company, University, UAW And Community;* January; p. 48

Filley, R. D.; *What's Holding IEs Back From The Office Of The Future?;* December; p. 38.

Filley, R. D.; *1984 Bar Code Equipment Buyer's Guide;* November; p. 29.

Flint, B.; *Design Team Has A System For Getting New Microcomputer From Drawing Board To Marketplace in 18 Months;* September; p. 37.

Fox, K. A.; *MRP-II Providing A Natural 'Hub' For Computer-Integrated Manufacturing System;* October; p. 44.

Frazelle, E., Smith, C.; *Worker Participation In Office Space Planning And Design Pays Large Dividends;* December; p. 34.

French, R. L.; *Managements Looking At CIMS Must Deal Effectively With These 'Issues And Realities';* August; p. 70.

Gaston, G. K.; *Facility Layout Optimizes Space, Minimizes Costs;* May; p. 22.

Ghandforoush, P., Huang, P. Y.; *Procedures Given For Evaluating, Selecting Robots;* April; p. 44.

Groover, M. P., Hughes, Jr., J. E., Odrey, N. G.; *Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems;* April; p. 50.

Gross, J. L.; *Components Can Be Added Gradually By Logically Mapping Out Present, Future Uses;* June; p. 28.

Gupta, S. M.; *Program Solves Minimum Spanning Tree Problem;* April; p. 20.

Hales, H. L.; *Computerized Facilities Planning And Design: Sorting Out The Options Available Now;* May; p. 61.

Hales, H. L.; *How Small Firms Can Approach, Benefit From Computer-Integrated Manufacturing Systems;* June; p. 42.

Hammer, Jr., W. E., Britton, H. O.; *Designers, Users And Managers Share Responsibility For Ensuring CIM System Integrity;* May; p. 36.

Hancock, W. M., Liker, J. K.; *Work Environment Survey Generates Ideas On Increasing White Collar Productivity;* July; p. 60.

Hanson, P. G., Jay, J. M., Van Zandt, R. N.; *Fourth Generation Computer Language Bridges Gap For Production And Inventory Data In Business Cycle;* September; p. 42.

Hill, I. D.; *Modern Manufacturing Techniques Require Flexible Approach To Facilities Planning;* May; p. 86.

Hill, T. W. LeClair, S. R.; *Functional Planning Approach Maps Out Connections Between People And Systems;* April; p. 26.
Hinson, R.; *Robotics Provide Improved Quality In Manufacturing;* January; p. 45.
Hinson, R.; *Study Analyzes Utilizing Robots In Palletizing;* January; p. 21.
Hinson, R.; *Machine Load, Unload Automation Is Robot Challenge;* March; p. 103.
Hinson, R.; *Case Packing By Robots Saves Labor, Injuries;* May; p. 29.
Hinson, R.; *Robot Applications Well Suited To Arc Welding Operations;* July; p. 30.
Huang, P. Y., Ghandforoush, P.; *Procedures Given For Evaluating, Selecting Robots;* April; p. 44.
Hughes, Jr., J. E., Odrey, N. G., Groover, M. P.; *Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems;* April; p. 50.
Hutchinson, G. K.; *Flexibility Is Key To Economic Feasibility Of Automating Small Batch Manufacturing;* June; p. 76.
Jackson, L.; *Office Automation Provides Opportunity To Examine What Workers Actually Do;* January; p. 91.
Jacobs, R. F.; *OPT Uncovered: Many Production Planning And Scheduling Concepts Can Be Applied With Or Without The Software;* October; p. 32.
Jay, J. M., Van Zandt, R. N., Hanson, P. G.; *Fourth Generation Computer Language Bridges Gap For Production And Inventory Data In Business Cycle;* September; p. 42.
Kapur, R., Berry, G. L., Robbins, J. H.; *Shop Floor Information System Is Foundation And Communications Link For CIMS;* December; p. 62.
King, L. T.; *IEs At Top Combine Global Perspectives, People Skills And Risk Taking As They 'Manage The Future': Harold C. McKenzie, Jr.;* August; p. 34.
Kleinfeld, I. H.; *General Purpose Software Adapted For IE Applications;* February; p. 18.
Kmak, T. R., Spohrer, G. A.; *Qualitative Analysis Used In Evaluating Alternative Plant Location Scenarios;* August; p. 52.
LeClair, S. R., Hill, T. W.; *Functional Planning Approach Maps Out Connections Between People and Systems;* April: p. 26.
Ledbetter, W. N., Cox, J. F., Snyder, C. A.; *Methodology Identifies Networking Requirements For Implementing An Office Automation System;* December; p. 52.
Li, D., Zaloom, V.; *Program Considers Relationships In Capital Budgeting Decisions;* August; p. 19.
Liker, J. K., Hancock, W. M.; *Work Environment Survey Generates Ideas On Increasing White Collar Productivity;* July; p. 60.
Liu, M., Sullivan, W. G.; *Economic Analysis Of A Proposed Industrial Robot;* October; p. 118.
Maginnis, C., Parsons, K.; *Quality Of Bar Code Printing Needs To Be Verified To Assure Ongoing Data Accuracy;* November; p. 48.
Magliola-Zoch, D., Weiner, R. G.; *Plan Applies IE Concepts To Improve Productivity And Measure Creative Process Of Professionals;* September; p. 46.
Magliola-Zoch, D., Weiner, R. G.; *Service Organizations Can Use IE Techniques To Improve Productivity Of Professional Workers;* August; p. 44.
Manchuk, S.; *CIM Project May Be Doomed To Failure If Key Building Blocks Are Missing;* July; p. 34.
Manivannan, S., Chaudhuri, D.; *Computer-Aided Facility Layout Algorithm Generates Alternatives To Increase Firm's Productivity;* May; p. 81.
Matta, K. F.; *Job Sequencing: Economic Approach Provides Best Order;* November; p. 22.
Mayer, R., Young, R. E.; *The Information Dilemma: To Conceptualize Manufacturing As Information Process;* September; p. 28.
McDermott, K. J.; *Microcomputer And Spreadsheet Software Make Time Studies Less Tedious, More Accurate;* July; p. 78.
McNall, G. R.; *Program Calculates Results Of Work Measurement Sampling;* July; p. 25.
Melkanoff, M. A.; *The CIMS Database: Goals, Problems, Case Studies And Proposed Approaches Outlined;* November; p. 78.
Mellichamp, J. M.; *Simulation Models Are A Flexible, Efficient Aid To Productivity Improvement Efforts;* August; p. 78.
Mendenhall, C. M., Whitehouse, G. E.; *Electronic Spreadsheets Ease Microcomputer Use For IEs;* September; p. 22.
Miller, D. M.; *Operations Research Offers Valuable Tools For Increasing Productivity, Profits;* April; p. 39.
Myers, C. F.; *Getting Industrial Engineers Involved With MRP-II;* October; p. 49.
Nanzetta, P.; *Update: NBS Research Facility Addresses Problems In Set-Ups For Small Batch Manufacturing;* June; p. 68.
Noller, D.; *Program Gives Best Choices For Scheduling Meetings;* January; p. 24.
Odrey, N. G., Groover, M. P., Hughes, Jr., J. E.; *Productivity Benefits Of Automation Should Offset Work Force Dislocation Problems;* April; p. 50.
Packer, A. F.; *Factories Can Meet Current And Future Needs By Phasing In Flexible Controls;* March; p. 72.
Parker, R. G.; *Using Combinatorics To Solve Production Scheduling Problems In Matching Jobs And Machines;* June; p. 22.
Parsons, K., Maginnis, C.; *Quality of Bar Code Printing Needs To Be Verified To Assure Ongoing Data Accuracy;* November; p. 48.
Paustenbach, D. J., Stewart, W. T.; *Analysis Techniques Help IEs Evaluate Ethical Dimensions Of On-The-Job Decisions;* April; p. 68.
Pierson, R. A.; *Adapting Horizontal Material Handling Systems To Flexible Manufacturing Setups;* March; p. 62.
Porter, A. L.; *Work Issues Raised By Office Automation Call For Expertise Of Industrial Engineers;* December; p. 24.
Pretzsch, H., Bressmer, D.; *Radio Frequencing System Of Identification Lowers Costs, Facilitates Production For German Auto Maker;* November; p. 64.
Punja, K. K.; Biegel, J. E.; *BASIC Program Aids In Production Planning;* October; p. 18.
Reeves, A. D., Stimson, R. A.; *Tri-Service DoD Program Provides Incentives For Factory Modernization;* February; p. 54.
Robbins, J. H., Berry, G. L., Kapur, R.; *Shop Floor Information System Is Foundation And Communications Link For CIMS;* December; p. 62.
Robinson, D. A.; *IEs Must Consider Ergonomic, Work Area Issues To Overcome Problems with VDTs;* December; p. 58.
Root, L. J. M.; *IEs Should Examine Impact Of Management Style On Motivation And Productivity;* January; p. 95.
Rhyne, D. M.; *IEs Can Play Vital Role In Bringing The Disabled Into Economic Mainstream;* April; p. 60.
Sadowski, R. P.; *Computer-Integrated Manufacturing Series Will Apply Systems Approach To Factory of Future;* January; p. 34.
Sadowski, R. P.; *History Of Computer Use In Manufacturing Shows Major Need Now Is For Integration;* March; p. 34.
Salomon, D. P., Biegel, J. E.; *Assessing Economic Attractiveness Of FMS Applications In Small Batch Manufacturing;* June; p. 88.
Sambandam, N., Woollam, C. R.; *Flow Shop Sequence Solved For Holding, Tardiness Costs;* June; p. 18.
Scalpone, R. W.; *Education Process Is Vital To Realization of CIM Benefits, Handling Of Pitfalls;* October; p. 110.
Schonberger, R. J.; *Just-In-Time Production Systems: Replacing Complexity With Simplicity In Manufacturing Manage-*

ment; October; p. 52.
Schroer, B. J., Black, J. T.; *Microcomputer Analyzes 2-Card Kanban System For 'Just-In-Time' Small Batch Production;* June; p. 54.
Sellie, C.; *Better Use Of Better Tools Should Make Work Measurement Increasingly Valuable In Future;* July; p. 82.
Sepehri, M.; *Microcomputer Is A Useful, Versatile Tool For All Levels Of Manufacturing Business Planning;* September; p. 56.
Sink, D. S.; *Experts Address Productivity Issues In Defense Industry For White House Conference;* February; p. 72.
Smith, C.; *Awareness, Analysis And Improvement Are Keys To White Collar Productivity;* January; p. 84.
Smith, C., Frazelle, E.; *Worker Participation In Office Space Planning And Design Process Pays Large Dividends;* December; p. 34.
Snyder, C. A., Cox, J. F., Ledbetter, W. N.; *Methodology Identifies Networking Requirements For Implementing An Office Automation System;* December; p. 52.
Spechler, J. W.; *American Express Implements Office Automation To Aid Customer Service;* December; p. 46.
Spohrer, G. A., Kmak, T. R.; *Qualitative Analysis Used In Evaluating Alternative Plant Location Scenarios;* August; p. 52.
Stevenson, D. O.; *Decision-Making On Investments Fuels Productivity Decline;* November; p. 70.
Stewart, W. T., Paustenbach, D. J.; *Analysis Techniques Help IEs Evaluate Ethical Dimensions Of On-The-Job Decisions;* April; p. 68.
Stimson, R. A., Reeves, A. D.; *Tri-Service DoD Program Provides Incentives For Factory Modernization;* February; p. 54.
Suarez, J. A., Tanchoco, J. M. A.; *Sensitivity Analysis Aids In Evaluation Of Investment;* March; p. 24.
Sullivan, K. H., Willis, R. G.; *CIMS In Perspective: Costs, Benefits, Timing, Payback Periods Are Outlined;* February; p. 28.
Sullivan, W. G., Liu, M.; *Economic Analysis Of A Proposed Industrial Robot;* October; p. 118.
Swann, D.; *Execution Is Key To Success Of Any System For Manufacturing Material Flow Control;* October; p. 26.
Tanchoco, J. M. A., Suarez, J. A.; *Sensitivity Analysis Aids In Evaluation Of Investment;* March; p. 24.
Tompkins, J. A.; *Successful Facilities Planner Must Fulfill Role of Integrator In The Automated Environment;* May; p. 54.
Tulkoff, J.; *MANTECH Program Aims To Make Factory Of Future A Reality In Defense;* February; p. 46.
Twedt, G. A.; *Data Collection From Production Workers Provides Basis For Better Decision Making;* November; p. 54.
Van Zandt, R. N., Jay, J. M., Hanson, P.G.; *Fourth Generation Computer Language Bridges Gap For Production And Inventory Data In Business Cycle;* September; p. 42.
Wade, L. F.; *Update On Military Standard 1567 And Proposed Applications Guide Describes Contractor Concerns;* February; p. 74.
Weiner, R. G., Magliola-Zoch, D.; *Plan Applies IE Concepts To Improve Productivity And Measure Creative Process Of Professionals;* September; p. 46.
Weiner, R. G., Magliola-Zoch, D.; *Service Organizations Can Use IE Techniques To Improve Productivity Of Professional Workers;* August; p. 44.
Wenzel, C. D.; *Look At Foreseeable Trends In Parts Handling Offers Strategies For System Planners;* March; p. 46.
Whitehouse, G. E., Mendenhall, C. M.; *Electronic Spreadsheets Ease Microcomputer Use For IEs;* September; p. 22.
Willis, R. G., Sullivan, K. H., *CIMS In Perspective: Costs, Benefits, Timing, Payback Periods Are Outlined;* February; p. 28.
Woollam, C. R., Sambandam, N.; *Flow Shop Sequence Solved For Holding, Tardiness Costs;* June; p. 18.
Young, R. E., Mayer, R.; *The Information Dilemma: To Conceptualize Manufacturing As Information Process;* September; p. 28.
Zaloom, V., Li, D.; *Program Considers Relationships In Capital Budgeting Decisions;* August; p. 19.

Proceedings: 1984 Annual Industrial Engineering Conference

Chicago, IL, May 6-10, 1984

Subjects (coded) and titles

0100 Costs

Cost of Quality and Productivity Improvement; Quinn, M. P., Bhatty, E. F.; p. 23.

0101 Budgeting

Mathematical Portfolio Analysis and Its Application to Capital Budgeting; Branting, D. L., Choobineh, F.; p. 137.

0102 Cost controls

Optimal Decision Making in a Resource Constrained Environment; Salinger, A. W.; p. 463.

Reducing Lead Times: Assumptions-Techniques-Benefits; Kelleher, J. P.; p. 510.

The Development of a Computer Integrated Manufacturing System: A Modular Approach; Lee, S. E., Mosier, C. T.; p. 49.

0103 Cost estimating

Emerging System Labor Quoting; Schehr, L.; p. 131.

Ramcost—A Simulation Algorithm for Availability-Based Life Cycle Cost Analysis; Moore, L. T., Ntuen, C. A.; p. 536.

0104 Cost reduction programs

Ergonomics—A Necessity or Luxury?; Coughenour, R.; p. 151.

0105 Productivity

A Comparison of Engineering Economy Practices in the U.S. and Japan with Productivity in Mind; Fujita, S., Turvaville, L. J.; p. 309.

An In-Depth Study and Review of State-of-the-Art and Practice Productivity Measurement Techniques; Sink, D. S., DeVries, S. J.; p. 333.

Branch Productivity; Lubinsky, J. N.; p. 38.

Employee Participation Programs That Improve Productivity and Quality; McManus, R., Sentore, F. R.; p. 297.

Fleet Management Operations Benefit from A Productivity Improvement Program; Forbes, L. H.; p. 238.

How to Measure and Improve Productivity in Professional, Administrative, and Service Organizations; Christopher, W. F.; p. 268.

Improving Employee Productivity Through the Detailed Definition of a Work Standard; Tremblay, P. F.; p. 617.
Low Rent Systems: Getting Simple Jobs Done Without Stealing Your People's Time; Danner, D. L.; p. 70.
Multi-Criteria Performance/Productivity Measurement Techniques; Sink, D. S.; p. 3.
Performance Measurement in the Presence of Interdependent Organizational Activities; Malmborg, C. J., Deutsch, S. J.; p. 434.
Power Plant Maintenance Productivity Improvement Programs; Seemer, R. H.; p. 611.
Productivity and Problem Solving: Don't Collect Data First; Scharf, A. D., p. 363.
Productivity Measurement in High Technology Areas; Smerilson, H. H., Fields, P. D. S.; p. 300.
Productivity Measurement in the Service Sector: A Hotel/Motel Application of the Multi-Factor Productivity Measurement Model; Swaim, J., Sink, D. S.; p. 320.
Productivity on a Shoestring: The Utah experience; Black, R. W.; p. 233.
The Productivity of Maintenance Mechanics—A Forest Industry Survey; Richards, J., Williams, W.; p. 355.
What Line Supervisors Need to Know for Productivity Improvement; Stewart, G. M.; p. 378.
Work Standards—Aid or Impediment to Productivity?; Schwinn, D. R.; p. 259.

0203 Implementing change
Employee Participation Programs That Improve Productivity and Quality; McManus, R., Sentore, F. R.; p. 297.

0206 Unions
Cooperative Labor-Management Strategic Planning in a Unionized Steel Plant; Swim, L. K., Sink, D. S.; p. 283.

0300 Engineering economics
A Comparison of Engineering Economy Practices in the U.S. and Japan with Productivity in Mind; Fujita, S., Turvaville, L. J.; p. 309.

0301 Cash flow analysis
Ramcost—A Simulation Algorithm for Availability-Based Life Cycle Cost Analysis; Moore, L. T., Ntuen, C. A.; p. 536.

0302 Equipment replacement
Replacement Decisions in High-Technology Industries—Where Are Those Models When You Need Them?; Sullivan W. G.; p. 119.

0304 General
Emerging System Labor Quoting; Schehr, L.; p. 131.
Methodologies of Economic Evaluation: A Rationale for Choice; Ray, T. G.; p. 129.
The Industrial Engineer as Catalyst in Economic Development; Ward, R. E., Byrd, Jr., J., George, Z. J.; p. 316.

0404 Plant design, construction
Create: Interactive Model of the Building Design Process; Webb, R. E., Wolfe, P. M.; p. 197.
FADES: Knowledge-based Facility Design; Fisher, E. L., Nof, S. Y.; p. 74.
Mail Distribution Center Design; Wright, P. L.; p. 33.

0406 Plant layout principles
The Spine Concept in Office Space Planning—Will it Work?; Frazelle, E. H.; p. 213.

0407 Plant layout evaluation/testing procedures
A Graph-Theoretic Heuristic for Multi-Floor Building Layout; Foulds, L. R., Giffin, J. W.; p. 202.
An Interactive Approach for Computer-Aided Facility Layout Selection (CAFLAS); Malakooti, B., D'Souza, G.; p. 206.
Innovative Improvement Procedures for Solving Quadratic Assignment Problems; Rankin, R. A., Wilhelm, M. R., Ward, T. L., Gupta, R., Dutton, R.; p. 191.

0408 Plant maintenance
Plant Maintenance Systems Survey Results; Retterath, R. L.; Bushey, R. R., Fettig, S. M.; p. 592.

0501 Assembly
Integrated Assembly, Testing and Rework in Automated Electronics Manufacturing; Richards, J. E.; p. 495.
Integrated Quality Systems and Assembly Lines; Dessouky, M. I.; Morrison, S. M., Kapoor, S. G., DeVor, R. E.; p. 414.
Quality Circle for Highly Variable Yield Assembly; Sepehri, M.; p. 529.

0502 Clerical
Ergonomics of the Office of the Future; Helander, M. G.; p. 170.

0503 Computer operation, software
A Network Simulation Model of a Computer Communications System; Musselman, K., Hannan, R. J.; p. 425.
Automating Your Current Work Measurement Data on Spreadsheet Software; Savage, D. F., Keevan, R. J.; p. 626.
Create: Interactive Model of the Building Design Process; Webb, R. E., Wolfe, P. M.; p. 197.
Electronic Spreadsheets and Their Applications; Whitehouse, G. E.; p. 57.
FADES: Knowledge-based Facility Design; Fisher, E. L., Nof, S. Y.; p. 74.
Fuzzy Sets—Computer Applications for IEs; Mooney, E. L., Taylor, W. R., Amunrud, M.; p. 89.
Local Area Networks: Consolidating the Power of Microcomputers; Hohner, G.; p. 64.
MVAQ: A New Computer-Based Tool for Modeling Flexible Manufacturing Systems; Suri, R.; Hildebrant, R. R.; p. 383.
Use Computer Vision As A Proximity Sensing Method; Chang, C. A., Pan, J. M., Goldman, J., Yeralan, S.; Tsen, T. Y.; p. 83.
Using a Micro, a Scanning and a Main Frame Computer to Operate a Retail Distribution Center; Leach, S. N.; p. 549.

0504 Maintenance, plant engineering
Generation Equipment Management System (GEMS); Howell, M. T.; p. 597.
Maintenance Management Computer Programs at Commonwealth Edison Company; Koncel, Jr., E. F., Crescent, J., Glader, H. J.; p. 600.
Maintenance Management for Generating Stations; Eucker, Jr., H. O.; p. 605
Plant Maintenance Systems Survey Results; Retterath, T. L., Bushey, R. R., Fettig, S. M.; p. 592.
Power Generation Maintenance Management; Rifkin, W.; p. 608.
Power Plant Maintenance Productivity Improvement Programs; Seemer, R. H.; p. 611.
Small Scale Cogeneration—A Unique Opportunity; Turner, W. C., Parker, S. A., Thompson, C. R., Froneberger, R. L.; p. 101.
The Power Supply Maintenance Management Program; Meeks, D. S.; p. 579.
The Productivity of Maintenance Mechanics—A Forest Industry Survey; Rickards, J., Williams, W.; p. 355.

0600 Human engineering
Integration of Human Operators in Computerized Manufacturing: Some Considerations; Salvendy, G., Nof, S. Y.; p. 179.

0602 Biomechanics
Determination of Rest Allowances for Repetitive

Physical Activities that Continue for Extended Hours; Mital, A., Shell, R. L.; p. 637.
Low Back Pain in the Workplace and the Clinical Concepts of Causality; Hadler, N. M.; p. 164.

0603 Ergonomics
Developing and Implementing a Corporate-wide Ergonomics Training Program at Chesebrough-Pond's, Inc., A Diversified Consumer Products Company; Vernes, P. D.; p. 156.
Ergonomics—A Necessity or Luxury?; Coughenour, R.; p. 151.
Ergonomics in Manufacturing; Fulbright, R. V.; p. 155.
Ergonomics of the Office of the Future; Helander, M. G.; p. 170.

0605 Motivation
Creative Team Building: A Force for Planned Change; Rosen, E. M.; p. 277.

0609 Training
From Work Design to Employee Training: Issues in Manual Materials Handling; Ayoub, M. M., Selan, J. L., Jiang, B. C.; p. 159.

0700 Incentive plans
Obligation and Opportunity: Ongoing Training for a Successful Wage Incentive Program; Koop, J. E.; p. 620.
The Restructuring of an Incentive Pay System: A Successful Case History; Brady, T. F.; p. 279.

0800 Industrial engineering
The Soft Side of Industrial Engineering—(Where The Real Dollars Are); Alexander, D. C., Hallen, G. L.; p. 372.

0805 IE's, IE technologist
Factory of the Future/IE of the Future; Welter, W. R.; p. 304.
The Industrial Engineer as Catalyst in Economic Development; Ward, R. E., Byrd, Jr., J., George, Z. J.; p. 316.

0901 Financial
Branch Productivity; Lubinsky, J. N.; p. 38.
Cost of Quality and Productivity Improvement; Quinn, M. P., Bhatty, E, F.; p. 23.

0902 Government
Productivity on a Shoestring: The Utah Experience; Black, R. W.; p. 233.

0903 Health care and other services
DRUMS—A Simulation Tool for Hospitals; Raz, R., Kachitvichyanukul, V., Paul, E., Lee, J.; p. 251.
The Probabilistic Scheduling for Fixed X-Ray Equipment in the Operating Rooms of an Acute Care Hospital; Shell, R. L., Okogban, O. G.; p. 487.

0904 Manufacturing
Automated Non-Contact Gaging for CAM; Anvari, M., Aswad, A. A.; 396.
Cooperative Labor-Management Strategic Planning in a Unionized Steel Plant; Swim, L. K., Sink, D. S.; p. 283.
Ergonomics in Manufacturing; Fulbright, R. V.; p. 155.
Factory of the Future/IE of the Future; Welter, W. R.; p. 304.
Information Systems for Closed-Loop Production Control Systems; Moore, L. T.; p. 502.
Inherent Errors on X, Y, Z Coordinate Measuring Machines on Curved Surfaces; Morgan, D. E., Piazza, J. E., Plyer, R. E.; p. 400.
Integrated Assembly, Testing and Rework in Automated Electronics Manufacturing; Richards, J. E.; p. 495.
Integration of Human Operators in Computerized Manufacturing: Some Considerations; Salvendy, G., Nof, S. Y.; p. 179.
Integrated Quality Systems and Assembly Lines; Dessouky, M. I., Morrison, S. M., Kapoor, S. G., DeVor, R. E.; p. 414.
Meeting the Requirements of Mil-Std 1567 and Lockheed-Georgia Computerized Standard Development System; Merrit, T., Alf, L. S.; p. 18.
MVAQ: A New Computer-Based Tool for Modeling Flexible Manufacturing Systems; Suri, R.; Hildebrant, R. R.; p. 383.
Networking a Coordinate Measurement Machine; Hoemsen, R.; p. 406.
Reducing Lead Times: Assumptions-Techniques-Benefits; Kelleher, J. P.; p. 510.
Technology Requirements to Support Aerospace Plant Modernization; Huber, J.; p. 9.
The Development of a Computer Integrated Manufacturing System: A Modular Approach; Lee, S. E., Mosier, C. T.; p. 49.

0905 Transportation, distribution
A User's Experience of a Major Manufacturing System Implementation; Meyerowitz, S. R., Wardlaw, G. J.; p. 477.
Computerized Vehicle Routing and Driver Work Standards in a Delivery Fleet Operation; Zielinski, E. L.; p. 561.
Fleet Management Operations Benefit From A Productivity Improvement Program; Forbes, L. H.; p. 238.
Mail Distribution Center Design; Wright, P. L.; p. 33.
The Modern Air Cargo Material Handling System; Wesenberg, A., Mulcahy, D. E., Prybys, J. J.; p. 570.
Transportation Department Freight System; May, W.; p. 555.

0906 Others
A Goal Programming Model of Resource Allocation for an Electric Utility; Mo, D. W.; p. 468.
A Mathematical Programming Model for Assembling Unit Loads of Timber; Taylor, W. R.; Lofgren, C. B.; p. 456.
Generation Equipment Management System (GEMS); Howell, M. T.; p. 597.
Maintenance Management Computer Programs at Commonwealth Edison Company; Koncel, Jr., E. F., Crescent, J., Glader, H. J.; p. 600.
Maintenance Management for Generating Stations; Eucker, Jr., H. O.; p. 605.
Plant Maintenance Systems Survey Results; Retterath, T. L., Bushey, R. R., Fettig, S. M.; p. 592.
Power Generation Maintenance Management; Rifkin, W.; p. 608.
Power Plant Maintenance Productivity Improvement Programs; Seemer, R. H.; p. 611.
Productivity Measurement in the Service Sector: A Hotel/Motel Application of the Multi-Factor Productivity Measurement Model; Swaim, J., Sink, D. S.; p. 320.
The Power Supply Maintenance Management Program; Meeks, D. S.; p. 579.
Using a Micro, a Scanning and a Main Frame Computer to Operate a Retail Distribution Center; Leach, S. N.; p. 549.

1000 Management
The Q&I (Quantitative and Integrative) Approach; Javaid, S.; p. 345.

1001 Administration
A Scientific Management System; Bodek, N.; p. 263.
Low Rent Systems: Getting Simple Jobs Done Without Stealing Your People's Time; Danner, D. L.; p. 70.

1003 Decision making

Cooperative Labor-Management Strategic Planning in a Unionized Steel Plant; Swim, L. K., Sink, D. S.; p. 283.

What Line Supervisors Need to Know for Productivity Improvement; Stewart, G. M.; p. 378.

1004 Information systems

Electronic Spreadsheets and Their Applications; Whitehouse, G. E.; p. 57.

Information Systems for Closed-Loop Production Control Systems; Moore, L. T.; p. 502.

Local Area Networks: Consolidating the Power of Microcomputers; Hohner, G.; p. 64.

1005 Management development

Creative Team Building: A Force for Planned Change; Rosen, E. M.; p. 277.

1006 Organization

Developing and Implementing a Corporate-wide Ergonomics Training Program at Chesebrough-Pond's, Inc., A Diversified Consumer Products Company; Vernes, P. D.; p. 156.

Performance Measurement in the Presence of Interdependent Organizational Activities; Malmborg, C. J., Deutsch, S. J.; p. 434.

1008 Controls

An In-Depth Study and Review of State-of-the-Art and Practice Productivity Measurement Techniques; Sink, D. S., DeVries, S. J.; p. 333.

How to Measure and Improve Productivity in Professional, Administrative, and Service Organizations; Christopher, W. F.; p. 268.

Multi-Criteria Performance/Productivity Measurement Techniques; Sink, D. S.; p. 3.

Productivity Measurement in High Technology Areas; Smerilson, H. H., Fields, P. D. S.; p. 300.

Productivity Measurement in the Service Sector: A Hotel/Motel Application of the Multi-Factor Productivity Measurement Model; Swaim, J., Sink, D. S.; p. 320.

1101 Containers, unit loads

A Mathematical Programming Model for Assembling Unit Loads of Timber; Taylor, W. R.; Lofgren, C. B.; p. 456.

1106 Industrial trucks

An Investigation of an Automatic Guided Vehicle System; Roth, B. S.; p. 218.

1114 General

A Modular Simulator for Automated Material Handling Systems; Bafna, K. M., Payoongsak, R.; p. 225.

A Simulation Model for Integrating an AGT System with Other Transportation Modes; Iskander, W. H., Hage, N. M.; p. 443.

From Work Design to Employee Training: Issues in Manual Materials Handling; Ayoub, M. M., Selan, J. L., Jiang, B. C.; p. 159.

The Modern Air Cargo Material Handling System; Wesenberg, A., Mulcahy, D. E., Prybys, J. J.; p. 570.

1201 Automation, Mechanization

A Simulation Model for Automated Multi-Stage Production Lines; Biles, W. E., Savsar, M.; p. 517.

An Investigation of an Automatic Guided System; Roth, B. S.; p. 218.

A User's Experience of a Major Manufacturing System Implementation; Meyerowitz, S. R., Wardlaw, G. J.; p. 477.

1202 Computer control

Information Systems for Closed-Loop Production Control Systems; Moore, L. T.; p. 502.

1203 Energy conservation

Small Scale Cogeneration—A Unique Opportunity; Turner, W. C., Parker, S. A., Thompson, C. R., Froneberger, R. L.; p. 101.

Solar Applications in Arizona's Energy Mix; Sears, R. L., Warnock, J. F.; p. 109.

1204 Identification systems

Use Computer Vision As a Proximity Sensing Method; Chang, C. A., Pan, J. M., Goldman, J., Yeralan, S., Tsent, T.; p. 83.

Using A Micro, A Scanning and a Main Frame Computer to Operate a Retail Distribution Center; Leach, S. N.,; p. 549.

1205 Manufacturing engineering

Modeling Parts Orienting Systems; Yeralan, S., Chang, C. A.; p. 450.

1207 Metrication

Automated Non-Contact Gaging for CAM; Anvari, M., Aswad, A. A.; p. 396.

Inherent Errors on X, Y, Z Coordinate Measuring Machines on Curved Surfaces; Morgan, D. E., Piazza, J. E., Plyer, R. E.; p. 400.

Networking a Coordinate Measurement Machine; Hoemsen, R.; p. 406.

1208 Principles, analysis

Technology Requirements to Support Aerospace Plant Modernization; Huber, J.; p. 9.

1209 Process design

Automating Process Planning Using Artificial Intelligence; Wolfe, P. M., Kung, H.; p. 387.

Reducing Lead Times: Assumptions-Techniques-Benefits; Kelleher, J. P.; p. 510.

Relationship Between Group Technology and Material Requirements Planning; Rabbi, M. F., Lakhmani, G.; p. 483.

1213 Work design, methods improvement

From Work Design to Employee Training: Issues in Manual Materials Handling; Ayoub, M. M., Selan, J. L., Jiang, B. C.; p. 159.

1300 Quantitative methods

Hotelling's T2 Chart to Detect Abnormalities; Sultan, T. I.; p. 541.

Optimal Decision Making in a Resource Constrained Environment; Salinger, A. W.; p. 453.

Replacement Decisions in High-Technology Industries—Where Are Those Models When You Need Them?; Sullivan, W. G.; p. 119.

The Q&I (Quantitative and Integrative) Approach; Javaid, S.; p. 345.

1301 Mathematical models

A Goal Programming Model of Resource Allocation for an Electric Utility; Mo. D. W.; p. 468.

A Mathematical Programming Model for Assembling Unit Loads of Timber; Taylor, W. R.; Lofgren, C. B.; p. 456.

Innovative Improvement Procedures for Solving Quadratic Assignment Problems; Rankin, R. A., Wilhelm, M. R., Ward, T. L., Gupta, R., Dutton, R.; p. 191.

Mathematical Portfolio Analysis and Its Application to Capital Budgeting; Branting, D. L., Choobineh, F.; p. 137.

1302 Networks

A Network Simulation Model of a Computer Communications System; Musselman, J. J., Hannan, R. J.; p. 425.

Computerized Vehicle Routing and Driver Work Standards in a Delivery Fleet Operation; Zielinski, E. L.; p. 561.

1305 Simulation/games

A Graph-Theoretic Heuristic for Multi-Floor Building Layout; Foulds, L. R., Giffin, J. W.; p., 202.

A Modular Simulator for Automated Material Han-

dling Systems; Bafna, K. M., Payoongsak, R.; p. 225.

A Simulation Model for Automated Multi-Stage Production Lines; Biles, W. E., Savsar, M.; p. 517.

A Simulation Model for Integrating an AGT System with Other Transportation Modes; Iskander, W. H., Hage, N. M.; p. 443.

Create: Interactive Model of the Building Design Process; Webb, R. E., Wolfe, P. M.; p. 197.

DRUMS—A Simulation Tool for Hospitals; Raz, T., Kachitvichyanukul, V., Paul, E., Lee, J.; p. 251.

Modeling Parts Orienting Systems; Yeralan, S., Chang, T. A.; p. 450.

MVAQ: A new Computer-Based Tool for Modeling Flexible Manufacturing Systems; Hildebrant, R. R., Suri, R.; p. 383.

Ramcost—A Simulation Algorithm for Availability-Based Life Cycle Cost Analysis; Moore, L. T., Ntuenm C. A.; p. 536.

1306 Applied probability

Fuzzy Sets—Computer Applications for IE's; Mooney, E. L., Taylor, W. R., Amunrud, M.; p. 89.

The Probabilistic Scheduling for Fixed X-Ray Equipment in the Operating Rooms of an Acute Care Hospital; Shell, R. D., Okogban, O. G.; p. 487.

1404 Materials Management

Relationship Between Group Technology and Material Requirements Planning; Rabbi, M. F., Lakhmani, G.; p. 483.

1500 Quality control

Cost of Quality and Productivity Improvement; Quinn, M. P., Bhatty, E. F.; p. 23.

Employee Participation Programs That Improve Productivity and Quality; McManus, R., Sentore, F. R.; p. 297.

Hotelling's T2 Chart to Detect Abnormalities; Sultan, T. I.; p. 541.

Quality Circle for Highly Variable Yield Assembly; Sepehri, M.; p. 529.

1501 Inspection

Automated Non-Contact Gaging for CAM; Anvari, M., Aswad, A. A.; p. 396.

Inherent Errors on X, Y, Z Coordinate Measuring Machines on Curved Surfaces; Morgan, D. E., Piazza, J. E., Plyer, R. E.; p. 400.

Networking a Coordinate Measurement Machine; Hoemsen, R.; p. 406.

1502 Quality control

Integrated Quality Systems and Assembly Lines; Dessouky, M. I., Morrison, S. M., Kapoor, S. G., DeVor, R. E.; p. 414.

1600 Work measurement

Performance Measurement in the Presence of Interdependent Organizational Activities; Malmborg, C. J., Deutsch, S. J.; p. 434.

1602 Computer aid

Automating Your Current Work Measurement Data on Spreadsheet Software; Savage, D. F., Keevan, R. J.; p. 626.

1604 Pace rating

An Analysis of Performance Rating; Wygant, R. M.; p. 632.

1606 Standard data

Computerized Vehicle Routing and Driver Work Standards in a Delivery Fleet Operation; Zielinski, E. L.; p. 561.

1608 Standards development

Improving Employee Productivity Through the Detailed Definition of a Work Standard; Tremblay, P. F.; p. 617.

Meeting the Requirements of Mil-Std 1567 and Lockheed-Georgia Computerized Standard Development System; Merritt, T., Aft, L. S.; p. 18.

Work Standards—Aid or Impediment to Productivity?; Schwinn, D. R.; p. 259.

1611 General

Determination of Rest Allowances for Repetitive Physical Activities that Continue for Extended Hours; Mital, A., Shell, R. L.; p. 637.

1704 Information retrieval

A Network Simulation Model of a Computer Communications System; Musselman, K. J., Hannan, R. J.; p. 425.

Electronic Spreadsheets and Their Applications; Whitehouse, G. E.; p. 57.

Information Systems for Closed-Loop Production Control Systems; Moore, L. T.; p. 502.

1705 General

Automating Process Planning Using Artificial Intelligence; Wolfe, P. M., Kung, H.; p. 387.

Local Area Networks: Consolidating the Power of Microcomputers; Hohner, G.; p. 64.

Proceedings: 1984 Fall Industrial Engineering Conference

Atlanta, GA, October 28-31, 1984

Subjects (coded) and titles

0100 Costs

On Spending Money; Kabak, I.W., Simonoff, J. S.; p. 205.

0102 Cost controls

Loss Control Project Evaluation Using Economic Analysis; Blank, L.; Vernon, R., Cantu-Garza, J.; p. 197.

0103 Cost estimating

Presenting Project Justification in a Language Top Management Understands; Gulati, V. K.; p. 370.

0104 Cost reduction programs

Downsizing—A Special Opportunity for Industrial Engineers; King, D. L.; p. 318.

Reduced Cost Through Group Technology Application; Zmolek, D. F.; p. 159.

0105 Productivity

A Computer-Based Productivity and Availability Assurance Program; Meyer, K. H., Gainen, L.; p. 80.

A Microcomputer-Based Management System for Productivity Improvement in Preventive Maintenance Work; Knapp, D. J.; p. 76.

A Review of Some Approaches to the Measurement of Total Productivity in a Company/Organization Sumanth, D. J., Tang, K.; p. 300.

Decision Support System Development for the Multi-Factor Productivity Measurement Model; Swaim, J., Sink, D. S.; p. 310.

Don't Lose Productivity at the Bargaining Table; Cooling, W. C.; p. 142.

Establishing the Productivity Cycle for White Collar Employees; Anthony, G. M.; p. 466.
Labor and Management's Cooperative Efforts to Increase Productivity; Sellie, C.; p. 374.
Locomotive Maintenance Productivity Measurement System; Tomcak, J. L.; p. 510.
People + Motivation = Productivity; Liberty S. A.; p. 386.
Performance Evaluation Processes and Perceptions of Productivity What You See is What You Get; Newmiller, C. E.; p. 284.
Productivity and Staffing Analysis of Hospital Units; Hancock, W. M.; Chan, T. J.; p. 404.
Productivity Programs in an Electric Utility; Fancher, R. L.; 523.
Strategic Planning for Successful Design, Development and Implementation of Productivity Management Programs; Sink, D. S.; p. 391.
The Fundamentals of an Operations Improvement Task Force; Cowdrick, Jr., R. M., Wormington, D.; p. 323.
The Road to Increased Mine Productivity; Holton, D. A., Johnson, R. O.; p. 499.
Don't Lose Productivity at the Bargaining Table; Cooling, W. C.; p. 142.

0203 Implementing change
Employer/Employee Changing Relationships—Are You Listening?; Mead, G. S.; p. 380.
Labor and Management's Cooperative Efforts to Increase Productivity; Sellie, C.; p. 374.

0205 Job evaluation
Job Analysis Evaluating Objectives and Methods; Hogue, K. C.; p. 288.

0206 Unions
Operation Audits: Answering to Management and Labor; Westgaard; O.; p. 399.
Participative Management in the Union Shop; Aswad, A. A., Stillings, K.; p. 365.

0303 Investment analysis
Presenting Project Justification in a Language Top Management Understands; Gulati, V. K.; p. 370.

0304 General
A Small Manufacturer's "First Time" Experience in Selecting a Computer and a Management Information System; Czura, M.; p. 96.
Loss Control Project Evaluation Using Economic Analysis; Blank, L.; Vernon, R., Cantu-Garza, J.; p. 197.
On Spending Money; Kabak, I. W., Simonoff, J. S.; p. 205.
Some Models for the Economic Justification of FMS; Biegel, J. E.; Salomon, D. P.; p. 53.
The Economics of Computer Aided Manufacturing; Meredith, J. R.; p. 125.

0400 Facilities planning, design
Microcomputer Software for Workstation Design and Estimation of Energy Cost of Work; Green, A. B., Pulat, B. M.; p. 342.

0405 Plant layout analysis
A Computer Assisted Facilities Layout Algorithm Using Graphics; Malstrom, E. M., Ketcham, R. L.; p. 88.

0503 Computer operation, software
A Computer Assisted Facilities Layout Algorithm Using Graphics; Malstrom, E. M., Ketcham, R. L.; p. 88.
A Microcomputer-Based Management System for Productivity Improvement in Preventive Maintenance Work; Knapp, D. J.; p. 76.
Computer-Aided Routing Systems in Retailing; Walsh, D. J.; p. 487.
Microcomputer Software for Evaluating Risk Due to Manual Materials Handling Tasks; Pulat, B. M.; p. 334.
Microcomputer Software for Workstation Design and Estimation of Energy Cost of Work; Green, A. B., Pulat, B. M.; p. 342.
VDT Ergonomics: A Survey and Guideline; Khalil, T. M., Beruvides, M. G.; p. 357.

0504 Maintenance, plant engineering
A Microcomputer-Based Management System for Productivity Improvement in Preventive Maintenance Work; Knapp, D. J.; p. 76.
Microcomputer Aided Maintenance Management System; Bagadia K.; p. 109.

0600 Human Engineering
Human Versus Robot: An Economic Feasibility Case Study; Vinayagamoorthy, R., Mital, A.; p. 212.
Microcomputer Software for Evaluating Risk Due to Manual Materials Handling Tasks; Pulat, B. M.; p. 334.
Using PMTS in Handicapped Workshops; Winkler, K. L.; McQuaid, M.; p. 443.

0602 Biomechanics
Development of Design Data Base for Manual Lifting Activities, for Extended Workshifts; Mital, A., Shell, R. L.; p. 350.

0603 Ergonomics
VDT Ergonomics: A Survey and Guideline; Khalil, T. M., Beruvides, M. G.; p. 357.

0605 Motivation
People + Motivation = Productivity; Liberty S. A.; p. 386.

0608 Safety and Health
Disaster Emergency Preparedness System By and For the Los Angeles County Sheriff's Department; Siegel, H., Curry, S. C.; p. 147.
Machinery Damage: A Case Study in Risk Management; Martin, C. D.; p. 481.

0805 IEs, IE Technologists
Downsizing—A Special Opportunity for Industrial Engineers; King, D. L.; p. 318.
The Industrial Engineer as a Catalyst for Organization Change; Greenwald, R. N.; p. 296.

0901 Financial
A Case Study of a Bank Teller Staffing Model; Overby, W. M.; p. 457.
Establishing the Productivity Cycle for White Collar Employees; Anthony, G. M.; p. 466.

0902 Government
Disaster Emergency Preparedness System By and For the Los Angeles County Sheriff's Department; Siegel, H., Curry, S. C.; p. 147.

0903 Health care and other services
A Materials Management System for Medical/Surgical Supplies; Van Liew, Jr., D. J., Malstrom, E. M.; p. 430.
Productivity and Staffing Analysis of Hospital Units; Hancock, W. M.; Chan, T. J.; p. 404.
The Use of Performance Standards in Appraising Employee Performance in Service Occupations; Goodgame, D. T.; p. 277.

0904 Manufacturing
Achieving Integrated Manufacturing System; Daugherty, M. J.; p. 103.
Analysis and Control of Flexible Multi-Robot Operations; Maimon, O.; Nof, S.; p. 17.
Approaches to the Scheduling Problem in FMS; Sarin, S. C., Dar-El, E. M.; p. 225.
Automatic Assembly: Today's Technology—Tommorow's Needs; Lewis, J. W.; p. 41.
Building the Bridge Between CAD/CAM/MIS; Devaney, C. W.; p. 71.
CIM—Target or Philosophy By-Product?; Smith, J.

L.; p. 130.
Computerized Electrical Energy Management in Industrial and Manufacturing Facilities; Porter, Jr., G. B.; p. 243.
Criteria for the Selection of a CIMS Data Base System; Windsor, J. C., Nestman, C. H.; p. 63.
Decision Support Systems in Computer Aided Manufacturing; Howell, E. A., Yancey, D. P., Armstrong, IV, F. B.; p. 115.
Design of Sequential Sampling Plans for an Automated Manufacturing System Using the Bayesian Approach; Shell, R. L., Okogbaa, O. G.; p. 471.
Developing a Simulation Language for Flexible Manufacturing; Remy, W. H., Koelling, C. P.; p. 236.
Engineering for Control of Manufacturing; Plossl, K. R.; p. 182.
Implementing a Computerized Process Planning System Based on a Group Technology Classification and Coding Scheme; Tulkoff, J.; p. 164.
Implementing Flexible Automation; Harkridger, F. E.; p. 133.
Industrial Robots/Form and Function; McDermott, K. J.; Alexander, M. S.; p. 46.
In Process Computer Control; Sim, J.; p. 168.
Machinery Damage: A Case Study in Risk Management; Martin, C. D.; p. 481.
Physical Modeling of Flexible Manufacturing Systems; Diesch, K. H.; Malstrom, E. M.; p. 3.
Production and Order Planning in the FMS Environment; Webster, W. B.; p. 173.
Reduced Cost Through Group Technology Application; Zmolek, D. F.; p. 159.
Simulation in Computer Integrated Manufacturing; Musselman, J. J., Duket, S. D.; p. 251.
Some Models for the Economic Justification of FMS; Biegel, J. E.; Salomon, D. P.; p. 53.
The Economics of Computer Aided Manufacturing; Meredith, J. R.; p. 125.

0905 Transportation, distribution
Locomotive Maintenance Productivity Measurement System; Tomcak, J. L.; p. 510.
The Airline Route Pattern Planning and Evaluation System; Riccio, L. A., Ron, N.; p. 507.

0906 Others
Basin Electric's Materials Inventory Control System; *Fettig, S. M., Bushey, R. R., Retterath, T. L.; p.* 536.
Computer-Aided Routing Systems in Retailing; Walsh, D. J.; p. 487.
Fashion Retailing: A Rationale for Markdown; Carlson, P. G.; p. 492.
Output Related Manpower Performance Measures in *Power Stations;* Easton, J.; p. 529.
Preparing for a Mandated Management Audit; Skala, *G. D.; p. 541.*
Productivity Programs in an Electric Utility; Fancher, R. L.; 523.
Quantitative Evaluation of Natural Gas Deregulation; Oldham, C. B., Gamala, J. R., Buchert, C.; p. 551.
The Road to Increased Mine Productivity; Holton, D. *A., Johnson, R. O.; p. 499.*

1000 Management
Operation Audits: Answering to Management and Labor; Westgaard; O.; p. 399.

1001 Administration
Preparing for a Mandated Management Audit; Skala, G. D.; p. 541.

1002 Communications
Employer/Employee Changing Relationships—*Are You Listening?;* Mead, G. S.; p. 380.
Presenting Project Justification in a Language Top Management Understands; Gulati, V. K.; p. 370.

1003 Decision making
Decision Support Systems in Computer Aided Manufacturing; Howell, E. A., Yancey, D. P., Armstrong, IV, F. B.; p. 115.
Fashion Retailing: A Rationale for Markdown; Carlson, P. G.; p. 492.
Participative Management in the Union Shop; Aswad, A. A., Stillings, K.; p. 365.
The Utilization of a Decision Support System for Work Measurement; Souder, H. R., Leigh, W., Damachi, N.; p. 437.

1004 Information systems
A Small Manufacturer's "First Time" Experience in Selecting a Computer and a Management Information System; Czura, M.; p. 96.
Building the Bridge Between CAD/CAM/MIS; Devaney, C. W.; p. 71.

1006 Organization
The Industrial Engineer as a Catalyst for Organizational Change; Greenwald, R. N.; p. 296.

1008 Controls
A Review of Some Approaches to the Measurement of Total Productivity in a Company/Organization; Sumanth, D. J., Tang, K.; p. 300.
Change the System or Change the Environment; Mather, H. F.; p. 190.
Criteria for the Selection of a CIMS Data Base System; Windsor, J. C., Nestman, C. H.; p. 63.
Decision Support System Development for the Multi-Factor Productivity Measurement Model; Swaim, J., Sink, D. S.; p. 310.
Engineering for Control of Manufacturing; Plossl, K. R.; p. 182.
Management and Control Systems Planning for Automated Facilities; Smith, C. A.; p. 258.
Microcomputer Aided Maintenance Management System; Bagadia K.; p. 109.
Strategic Planning for Successful Design, Development and Implementation of Productivity Management Programs; Sink, D. S.; p. 391.
The Fundamentals of an Operations Improvement Task Force; Cowdrick, Jr., R. M., Wormington, D.; *p. 323.*

1101 Containers, unit loads
Automatic Handling of Small Parts—A Systematic Approach; Poli, C.; p. 10.

1109 Principles, analysis
Microcomputer Software for Evaluating Risk Due to Manual Materials Handling Tasks; Pulat, B. M.; p. 334.

1201 Automation, mechanization
Analysis and Control of Flexible Multi-Robot Operations; Maimon, O.; Nof, S.; p. 17.
Automatic Assembly: Today's Technology—Tommorow's Needs; Lewis, J. W.; p. 41.
Automatic Handling of Small Parts—A Systematic Approach; Poli, C.; p. 10.
Human Versus Robot: An Economic Feasibility Case Study; Vinayagamoorthy, R., Mital, A.; p. 212.
Implementing Flexible Automation; Harkridger, F. *E.; p. 133.*
Industrial Robots/Form and Function; McDermott, K. J.; Alexander, M. S.; p. 46.
Robots—Applications & Capabilities; Smith, J. L.; p. 488.

1202 Computer control
Building the Bridge Between CAD/CAM/MIS; Devaney, C. W.; p. 71.
CIM—Target or Philosophy By-Product?; Smith, J. *L.; p. 130.*
Criteria for the Selection of a CIMS Data Base

System; Windsor, J. C., Nestman, C. H.; *p. 63.*
In Process Computer Control; Sim, J.; p. 168.
Operations Research and Computer-Integrated Manufacturing Systems; Biles, W. E., Zohdi, M. E.; p. 220.
Physical Modeling of Flexible Manufacturing Systems; Diesch, K. H.; Malstrom, E. M.; p. 3.

1203 Energy conservation
Computerized Electrical Energy Management in Industrial and Manufacturing Facilities; Porter, Jr., G. B.; p. 243.

1205 Manufacturing engineering
Implementing a Computerized Process Planning System Based on a Group Technology Classification and coding Scheme; Tulkoff, J.; p. 164.
Reduced Cost Through Group Technology Application; Zmolek, D. F.; p. 159.

1209 Process design
Implementing a Computerized Process Planning System Based on a Group Technology Classification and Coding Scheme; Tulkoff, J.; p. 164.
Integrated Product Design and Assembly Process Design; Graves, R. J., Poli, C.; p. 265.

1213 Work design, methods improvement
Microcomputer Software for Workstation Design and Estimation of Energy Cost of Work; Green, A. B., Pulat, B. M.; p. 342.
Robots—Applications & Capabilities; Smith, J. L.; p. 448.

1300 Quantitative methods
Operations Research and Computer-Integrated Manufacturing System; Biles, W. E., Zohdi, M. E.; *p.* 220.
Production Planning and Control at an Aeronautical Depot: An Analysis of Stochastic Scheduling; Fargher, Jr., J. S. W.; p. 29.
Quantitative Evaluation of Natural Gas Deregulation; Oldham, C. B., Gamala, J. R., Buchert, C.; p. *551.*
The Airline Route Pattern Planning and Evaluation System; Riccio, L. A., Ron, N.; *p. 507.*

1305 Simulation/games
Developing a Simulation Language for Flexible Manufacturing; Remy, W. H., Koelling, C. P.; p. 236.
Simulation in Computer Integrated Manufacturing; Musselman, J. J., Duket, S. D.; *p. 251.*

307 Experimental design
Design of Sequential Sampling Plans for an Automated Manufacturing System Using the Bayesian Approach; Shell, R. L., Okogbaa, O. G.; p. 471.

1400 Production and inventory control
Change the System or Change the Environment; Mather, H. F.; *p. 190.*
Management and Control Systems Planning for Automated Facilities; Smith, C. A.; *p. 258.*
Production Planning and Control at an Aeronautical Depot: An Analysis of Stochastic Scheduling; Fargher, Jr., J. S. W.; p. 29.

1403 Inventory control
Output Related Manpower Performance Measures in Power Stations; Easton, J.; p. 529.

1404 Materials management
A Materials Management System for Medical/Surgical Supplies; Van Liew, Jr., D. J., Malstrom, E. M.; p. 430.

1406 Production planning
Production and Order Planning in the FMS Environment; Webster, W. B.; p. 173.
The Industrial Engineer's First Commandment—Thou Shall Not Use Work Standards to Set Production Quotas; Kugemann, Sr., L. E.; p. 329.

1407 Production scheduling
Approaches to the Scheduling Problem in FMS; Sarin, S. C., Dar-El, E. M.; p. 225.

1600 Work measurement
The Utilization of a Decision Support System for Work Measurement; Souder, H. R., Leigh, W., Damachi, N.; p. 437.

1602 Computer Aid
Computer Aided Standard Data Development for Work Measurement; Wilerson, D. L.; p. 410.
Computer Program Development Estimation Model; Uzi, M., Fischer, J.; p. 418.

1606 Standard data
The Use of Performance Standards in Appraising Employee Performance in Service Occupations; Goodgame, D. T.; p. 277.

1607 Standards Auditing
Preparing for a Mandated Management Audit; Skala, G. D.; p. 541.

1608 Standards Development
A Self-Defining Slotting Technique for Estimating Standard Times; Uzi, M., Fischer, J.; *p. 418.*
The Industrial Engineer's First Commandment—Thou Shall Not Use Work Standards to Set Production Quotas; Kugemann, Sr., L. E.; p. 329.

1611 General
A Case Study of a Bank Teller Staffing Model; Overby, W. M.; p. 457.
Output Related Manpower Performance Measures in Power Stations; Easton, J.; p. 529.
Performance Evaluation Processes and Perceptions of Productivity: What You See is What You Get; Newmiller, C. E.; p. 284.